

CLAIMS

Sub  
5 1. A substrate suitable for printing a toner image thereon, comprising:  
a sheet of plastic;  
an underlayer coating, on the sheet of plastic, comprising a first polymer material  
comprising a polymer chosen from the group consisting of amine terminated polyamide, a  
silane coupling agent and amino propyl triethoxy silane;  
an overlayer coating, directly on the underlayer, comprising a second polymer material  
and having an outer surface to which a toner image can be fused and fixed.

10 2. A substrate according to claim 1 wherein the overlayer is substantially free of  
particulate matter.

15 3. A substrate according to claim 1 or claim 2 wherein the overlayer is substantially wax  
and pigment free.

20 4. A substrate suitable for printing a toner image thereon, comprising:  
a sheet of plastic;  
an underlayer coating, on the sheet of plastic, comprising a first polymer material;  
an overlayer coating, directly on the underlayer, comprising a second polymer material  
and having an outer surface to which a toner image can be fused and fixed, the second  
polymer consisting essentially of a polymer chosen from the group consisting of ethylene  
acrylic acid copolymer, polyvinyl pyridine and styrene butadiene copolymer,  
characterized in that the overlayer is substantially wax and pigment free.

25 5. A substrate according to claim 4 wherein the overlayer is substantially free of  
particulate mater.

30 6. A substrate suitable for printing a toner image thereon, comprising:  
a sheet of plastic;  
an underlayer coating, on the sheet of plastic, comprising a first polymer material;

an overlayer coating, directly on the underlayer, comprising a second-polymer material and having an outer surface to which a toner image can be fused and fixed, the second polymer consisting essentially of a polymer chosen from the group consisting of ethylene acrylic acid copolymer, polyvinyl pyridine and styrene butadiene copolymer,

5 characterized in that the overlayer is substantially free of particulate matter.

A 7. A substrate according to any of the preceding claims wherein the sheet of plastic is polyethylene.

A 10 8. A substrate according to any of claims 1-6 wherein the sheet of plastic is vinyl.

*Sub* A 9. A substrate according to any of claims 1-6 wherein the sheet of plastic is polycarbonate.

A 15 10. A substrate according to any of claims 1-6 wherein the sheet of plastic is PET.

A 11. A substrate according to any of claims 1-6, wherein the sheet of plastic is BOPP.

A 20 12. A substrate according to any of the preceding claims wherein the overlayer comprises styrene butadiene copolymer.

13. A substrate suitable for printing a toner image thereon, comprising:  
 a sheet of BOPP plastic;  
 an underlayer coating, on the sheet of plastic, comprising a first polymer material;  
 an overlayer coating, directly on the underlayer, comprising a second polymer material and having an outer surface to which a toner image can be fused and fixed, the second polymer consisting essentially of a polymer chosen from the group consisting of ethylene acrylic acid copolymer and polyvinyl pyridine.

A 30 14. A substrate according to any of claims 1-11 or 13, wherein the overlayer comprises ethylene acrylic acid copolymer.

15. A substrate according to claim 14 wherein the ethylene acrylic acid copolymer has an acrylic acid comonomer percentage weight of less than 18%.

16. A substrate according to claim 14 wherein the ethylene acrylic acid copolymer has an acrylic acid comonomer percentage weight of less than 16%.

A 17. A substrate according to ~~any of claims 14-15~~ wherein the ethylene acrylic acid copolymer has an acrylic acid comonomer percentage weight of more than 8%.

A 18. A substrate according to ~~any of claims 14-15~~ wherein the ethylene acrylic acid copolymer has an acrylic acid comonomer percentage weight of more than 12%.

A 19. A substrate according to any of claims ~~1-11 or 13~~ wherein the overlayer comprises polyvinyl pyridine.

20. A substrate according to any of the preceding claims wherein the underlayer comprises amine terminated polyamide.

A 21. A substrate according to any of claims ~~1-19~~ wherein the underlayer comprises a silane coupling agent.

A 22. A substrate according to any of claims ~~1-19~~ wherein the underlayer comprises amino propyl triethoxy silane.

A 23. A substrate according to any of the preceding claims wherein the underlayer has a weight of between 0.1 and 1 grams per square meter.

A 24. A substrate according to any of the preceding claims wherein the underlayer has a weight of between about 0.3 and 0.5 grams per square meter.

A 25. A substrate according to any of the preceding claims wherein the overlayer has a weight of between 0.1 and 10 grams per square meter.

Claims 1, 4, 6 or 13

A Contd 26. A substrate according to any of the preceding claims wherein the overlayer has a weight of between 0.2 and 2 grams per square meter.

27. A substrate according to claim 26 wherein the overlayer has a weight of between about 5 0.25 and about 0.35 grams per square meter.

Sub A  
B5 28. A substrate according to any of the preceding claims wherein the underlayer is substantially free of particulate matter.

A 10 29. A substrate according to any of the preceding claims comprising only two coating layers.

30. A method of producing a coated substrate which a toner image can be adhered comprising:

15 coating a sheet of plastic with a first polymer material as an underlayer, the underlayer comprising a polymer chosen from the group consisting of amine terminated polyamide, a silane coupling agent and amino propyl triethoxy silane;

20 directly overcoating the underlayer with an second polymer material to form an overlayer coating on the underlayer, the overlayer having an outer surface to which a toner image can be adhered and fixed.

31. A method according to claim 30 wherein the coated substrate is a substrate according to any of claims 1, 4, 6 or 13.

A Sub B  
A 25 B 32. A substrate produced according to the method of claim 30 or claim 31.

33. A substrate comprising a sheet of BOPP and an outer coating consisting substantially only of a polymer chosen from the group consisting of ethylene acrylic acid copolymer, and polyvinyl pyridine.

30 34. A substrate according to claim 33 wherein the coating comprises polyvinyl pyridine.

35. A substrate according to claim 33 wherein the coating comprises ethylene acrylic acid copolymer.

36. A substrate according to claim 35 wherein the ethylene acrylic acid copolymer has an 5 acrylic acid comonomer percentage weight of less than 18%.

*Sub B17* 37 A printing method comprising:

providing a substrate according to any of claims 1-29 or 32-36 or produced according to claim 30 or claim 39; and

10 printing a toner image on the substrate.

38. A printing method according to claim 37 wherein the toner image is a liquid toner image.

15 39. A printing method according to claim 37 or claim 38 wherein printing comprises transferring the toner image to the substrate using heat and pressure.

40. A printing method according to claim 37 or 38 wherein printing comprises electrostatically transferring the toner image to the substrate.

20 41. A printing method according to any of claims 37-40 and comprising:  
Claim 37  
forming the image on an image forming surface;  
transferring the image from the image forming surface to an intermediate transfer member; and

25 transferring the image from the intermediate transfer member to the substrate.

*Add B8*